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ABSTRACT

A state-level library acquisitions model is described, and the results of a two-year implementation by Colorado appropriating agencies are analyzed. The model was developed to address two problems: (1) determining library collection standards for each campus: and (2) presenting campus acquisition needs in a way that differentiated campus roles and needs. It employs a simultaneous quantitative (two-digit) approximation of campus role and mission with respect to the roles and missions of all other campuses in the state. Acquisition costs are determined, and a process is developed for full or partial funding of each campus' need without disrupting the overall relative needs of all campuses. State legislative response is noted. (Author)

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STATE LEVEL LIBRARY ACQUISITONS

RESOURCE ALLOCATION MODEL

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Mary Corcoran
University of Minnesota
(Editor, AIR Forum Publications)

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ABSTRACT

Traditional academic library acquisitions formulas stress absolute need for a given institution based upon numbers of faculty, students, and degree programs. Budgetary constraints have caused appropriating agencies to seek processes which equitably allocate state monies to institutions of higher education.

A state-level library acquisitions model is described, and the results of a two year implementation by the state appropriating agencies are analyzed. The model employs a simultaneous quantitative (two digit HEGIS) approximation of campus role and mission with respect to the roles and missions of all other campuses in the state. Acquisition costs are determined, and a process is developed for full or partial funding of each campus' need without disrupting the over all relative needs of all campuses.

A method of maintaining the model is presented.

I. BACKGROUND

In 1976 the Colorado Association of Public Colleges and University Presidents (APCUP) began organizing a series of task forces whose charge was to develop rational processess for budget requests and appropriations among the institutions of higher education. These task forces, which reported to the voluntary presidents association on a periodic basis, analyzed several budget categories:

- Instruction
- Administration
- Student services
- Library operations and acquisitions
- Physical plant operations
- Capital outlay (moveable equipment)

The "formula library" task force received a charge very similar to the charge given the other task groups:

> "Develop a funding process which is (as appropriate):
>
> Simple and readily explainable.
> Permits diversity in programming and instructional styles.
> Reflects variations in student ability, preparation, and program preferences.
> Encourages equitable distribution of resources among institutions and programs."

The library budgeting committee was organized and consisted of:

- Three university librarians
- One technical service librarian
- Two institutional researchers with strong budetary backgrounds.
- A director of planning at a two-year college
- A two-year college librarian

- A computer systems analyst
- A college business vice president (chairperson of of committee)

The committee attempted two tasks simultaneously: the development of a staffing formula and a library acquisitions process. The library acquisitions model is discussed in this report.

II. DEVELOPMENT OF THE LIBRARY ACQUISITIONS MODEL

The model was developed by focusing on two main problems which had to be solved if equitable distribution of resources was to be realized:

- How were collection standards for each campus to be determined? The problem was further complicated by the necessity to relate one campus' collection standards to all other campuses.
- How were campus acquistion needs to be presented such that role differentiation was displayed?

The approach taken by the committee was both general and detailed:

1. General Approach

Each campus' role and mission was described in general terms based upon:

- Campus statements existent in the current state-level higher education master plan.
- State coordinating agency data on academic program offerings and degrees conferred by each institution.
- Existing collection size (by campus) by academic discipline.
- Institutional self-evaluations developed by the campus librarians.
- Current approved campus master plans.

2. Detailed Approach

The general discription was converted to a detailed presentation of library collections at the two digit HEGIS level. The conversion was described as one of four levels of collection "quality" for each two-digit HEGIS discipline for each campus:

- Collection of excellence (40% to 60% of estimated annual publications in the discipline; only one such designation per HEGIS code.)
- Collection of high quality (20% to 40%; two or more code 2's constituted a code 1.)
- General collection (5% to 20%; sufficient to maintain basic collection.)
- Minimum collection (0 to 5%; small, representative sample.)

State-wide meetings were held with campus librarians to negotiate the collection quality code for each two-digit HEGIS.

The results of the collection code analysis were converted to percentages and arrayed in the matrices shown in Tables 1 and 2. Examples of the decision-making process for three disciplines are shown below:

1. Agriculture: Institution two has the premier agriculture and land management programs in the state. All other institutions require only basic or minimum collection except:
   - Institution three has collection needs related to mining engineering.
   - Institution eight has a strong undergraduate feeder program for institution two.
   - Institution ten has a developing agri-business program.

2. Engineering/Computer Science: Institutions one, two, four have significant commitments in engineering and computer science. As a group, they require a collection of excellence in all specialties of the discipline.

3. Education: Institution three has a broad base professional education commitment with institutions one and two possessing limited professional education programs through the terminal degree.

The collection percentages were designed to provide a maintenance level acquisitions budget. "Catch up" for deficient collections or "accelerated start up" for new programs were accommodated by awarding (temporarily) a higher collections percentage for a given discipline than a collections percentage for a maintenance level budget. The temporary percentages are identified by an asterisk.

Attention was then focused upon estimating the world's annual publication figures and arraying these figures by two-digit HEGIS. Determination of published volumes was accomplished by:

- Analyzing the most recent data present in basic reference documents such as the Library Journal and Publishers Weekly.
- Detailed annual domestic publications figures were pro-rated upward to estimates of total world-wide annual publication figures.
- The technical services librarians and the university bibliographer then allocated the total world-wide estimate across the two-digit HEGIS disciplines for college and university acquistions need analysis.
- Annual domestic publications figures were arrayed across the HEGIS disciplines for two-year college acquisitions analysis (Tables 1 and 2).

III. BASIC ACQUISITIONS REQUEST

For each discipline, the percentage derived from the collection code is multiplied by the estimated annual production for the discipline to yield the acquisitions request for the discipline. The discipline requests are summed together to yield the total acquisitions request for the campus.

Example: Institution Three (Table 1)

Agriculture	Architecture	Bio. Sciences	Non Book	Total Volumes
(8000) (.01)	+ (4000) (.01) +	(8000) (.01)	(15000) (.05) =	39,740

IV. CONVERSION OF VOLUME REQUEST TO DOLLAR REQUEST

A. Development of Average Unit Costs

Campus budget requests made to state appropriating agencies must be stated in dollars as well as volumes. An average unit cost figure is developed each fiscal year based on most recent actual data and applied to the "formula volume" count. Using the results of section III, if institution three realized an average unit cost of $21.78 full funding of the formula would yield an appropriation of:

39,740 volumes X $21.78/volume = $865,537

Development of the average unit costs procedure for each campus was a technical exercise which took eighteen months to complete. The major problem encountered in determining unit costs was establishing procedures and definitions for counting different kinds of library materials purchased each year. Current budget definitions for counting and reporting library materials were too vague. If the definitional problems were resolved, comparable unit cost information could be gathered each year. In summary the process for collecting average unit costs each year is as follows:

The "formula library" task force appoints a member of the committee to chair a "unit cost" subcommittee composed of at least one librarian from each academic sector. The "unit cost" subcommittee is responsible for reviewing the following:

- The definitions for counting and reporting purchased library materials.
- Collecting the most recent unit cost data.
- Reviewing the actual unit cost information to identify any problem areas.

Each institution submits its average unit cost based on the number of units purchased and the total dollars expended for monographs, subscriptions, microforms and non book learning materials. If unit costs vary significantly from one year to the next, the institution must justify these changes. After the "unit cost" subcommittee has resolved any issues with the institutional data, the subcommittee reports its findings and recommendations to the parent committee. The "library formula" task force reviews the report; if it concurs with the recommendations, the unit cost information is submitted to the appropriate State agencies.

The procedures used by the "unit cost" subcommittee constitutes a self-policing process. This process has contributed significantly to the internal and external credibility of the library acqusistions resource allocation model.

B. Display of State-wide Budget Request (see Table 3)

Table 3 summarizes a state-wide budget request, by campus, based upon the formula volumes of Table 1 and 2 and the derived average unit costs discussed in section IV A. Formula volumes (column 2) times average unit costs (column 3), by campus, are summed for all campuses to produce a total state acquisitions need (in dollars).

With budget constraints common place in the 1970's a method had to be devised to enable state appropriating agencies to fund the formula at less than 100% without disrupting the overall dollar needs relationship between campuses. To do this, each campus need at 100% was compared with total state need at 100%. The result was a proration percentage which could be used to allocate incremental new dollars above the current base (Table 3, columns 5 and 6).

Example: Institution Four

865,537 divided by 8,845,920 = 9.78% of total state need at 100% of formula

If the state decides to allocate 10% new money ($451,871) state-wide, institution four would receive 9.78% of the new money ($44,193) for a new acquisitions budget of $523,422 + $44,193 = $567,615.

V. MAINTENANCE OF RESOURCE MODEL

As noted in the previous sections, the unit cost component of the model is updated every year. Unit costs must demonstrate the most recent buying patterns, particularly in the present inflationary situation.

The publication base and the collection code percentages are the other two factors which are used in determining the total number of library materials for each institution. The publication base is reviewed every other year. It is revised, when appropriate, to reflect any changes in publishing patterns by discipline. The collection code percentages are reviewed annually at a statewide meeting of library directors. The collection code percentages are revised based upon changes in approved programs, program size and the relative importance of the program to the State. Each institution has the opportunity to request changes in its collection code percentages, as well as propose revisions in the publication base when appropriate.

Because the factors are updated frequently, the model is responsive to a changing environment and reflects the "best" information available. Again the self-policing process adds to the credibility of the model.

VI. ANALYSIS OF LEGISLATIVE RESPONSE TO RESOURCE ALLOCATION MODEL

The proration procedure displayed in Table 3 was not a part of the process during the first year the formula was used. The Legislative staff made recommendations which caused reallocation of existing appropriation bases. The resulting political furor was significant. Working with the staff of the library committee, the Legislature developed a comprehensive appropriation. The proration procedure was developed the following year and has been used for two fiscal years. The over all formula has implemented support from all of Higher Education in the State and has developed high credibility with the appropriating agencies. Fiscal year 1980-81 displayed the full credibility of the formula.

Initially, the Legislature recommended a ten percent increase in acquisition budget with the incremental new dollars distributed according to Table 3. When serious collection deficiencies at the two major comprehensive research institutions were made public, the appropriation agenices nearly doubled the original recommendation with the additional dollars again distributed according to Table 3. In this matter, the major institutions received badly needed assistance, but the smaller institutions also received new resources. The over all role, mission and size relationships of the institutions remained in balance with respect to acquisitons budget.

TABLE 1

FOUR-YEAR/UNIVERSITY SECTORS

Discipline	World Publications Volumes	INSTITUTIONS 1	2	3	4	5	6	7	8	9	10	11
Agriculture	8,000	.03	.60	.01	.06	.05	.01	.01	.20	.01	.10	.01
Architecture	4,000	.30	.02	.01	.01	.50	.01	.01	.01	-0-	.01	.01
Area Studies	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Bio Sciences	8,000	.60	.50	.10	.05	.10	.02	.03	.05	.02	.10	.05*
Business	13,000	.35*	.20*	.15	.15	.20	.05	.11*	.03	.05	.06*	.20*
Communications	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-	-0-
Comp Sci/Engr	8,000	.40	.35	.04	.35	.20	.10*	.01	.01	.02	.10	.14
Education	18,500	.25	.25	.60	.00	.15	.08	.12	.01	.10	.03	.10
Fine Arts	18,000	.30	.15	.25*	.01	.15	.02	.08	.05	.10	.05	.03
Foreign Language	20,000	.50	.20	.10	.005	.05	.05	.05	.03	.03	.02	.05
Health Professions	12,000	.30	.50	.13	.01	.15	.10	.01	.02	.02	.05	.05
Home Economics	3,000	.01	.50	.10	-0-	.01	.01	.01	.01	-0-	.01	.01
Law	10,000	.55	.06	.04	.03	.05	.01	.03	.02	.02	.02	.02
Letters	24,000	.40	.15	.15	.02	.15	.10	.12	.11	.10	.10	.10
Library Science	2,000	.05	.05	.40	.01	.10	.01	.01	.01	.01	.01	.01
Math, Stat, Phys Sci	22,000	.55	.35	.10	.30	.10	.06*	.06	.01	.05	.08*	.07
Psychology	5,000	.60	.30	.30	.02	.15	.02	.10	.10	.10*	.05	.10
Public Affairs	7,000	.20	.20	.15	.001	.55*	.01	.05	.01	.02	.05	.20*
Soc Science	22,500	.40	.20	.20	.03	.25*	.07	.07	.10	.07	.07	.07
Reference	15,000	.20*	.20*	.15*	.07*	.20*	.07*	.10*	.07*	.05*	.10*	.15*
Non-Book	15,000	.05*	.02	.05	.02	.16*	.10	.05*	.04	.02	.07*	.01
Total Acquisition Units	235,000	82,065	55,805	39,740	15,602	37,830	13,935	15,875	12,015	12,525	14,810	18,215

TABLE 2

TWO - YEAR SECTOR

Discipline	Publication Base - Total	Publication Base - 2 year	Institution 12	13	14	15
Agriculture	8,000	2,527	.01	.10	.02	.20
Architecture	4,000	1,264	.10	.15	.10	--
Area Studies	--	--	--	--	--	--
Bio Sciences	8,000	2,527	.10	.20	.20	.10
Business	13,000	4,107	.10	.30	.25	.02
Communications	--	--	--	--	--	--
Computer Science	1,000	316	.15	.20	.25	.05
Education	18,500	5,844	.02	.10	.05	.01
Engineering Tecnologies	7,000	2,211	.20	.25	.30	.15*
Fine Arts	18,000	5,686	.10	.25	.15	.10
Foreign Languages	20,000	6,318	.10	.15	.20	.10
Health Professions	12,000	3,791	.20	.25	.15	.15
Home Economics	3,000	948	.001	.01	.10	.15
Law (Paralegal)	10,000	2,159	.20	.10	.15	.01
Letters	24,000	7,582	.17	.30	.15	.15
Library Science	2,000	632	.001	.05	--	--
Math-Physical Sciences	22,000	6,950	.05	.30	.15	.05
Military Science	--	--	--	--	--	--
Psychology	5,000	1,580	.10	.30	.20	.10
Public Affairs	7,000	2,211	.02	.20	.10	.01
Social Sciences	22,500	7,108	.10	.30	.10	.10
Theology	--	--	--	--	--	--
Reference	15,000	4,739	.05	.15	.15	.05
Other Non-Book	15,000	4,739	.18	.60	.35	.03
Total Volumes	235,000	74,239	7,654	18,016	11,796	5,945

TABLE 3

Recommended Implementation for Library Acquisitions for 1980-81 Request Year

Campus	New Formula Volumes	New Unit Costs	New Formula Dollars @ 100%	% Total Formula	Pro-Rated New Dollars with +10% Increment
1	82,065	$ 27.45	$2,252,684	25.47	$ 115,092
2	55,805	30.69	1,712,655	19.36	87,482
3	39,740	21.78	865,537	9.78	44,193
4	15,602	33.22	518,298	5.86	26,480
5	37,830	19.65	743,359	8.40	37,957
6	13,935	20.94	291,799	3.30	14,912
7	15,875	17.58	279,083	3.15	14,234
8	12,015	22.69	272,620	3.08	13,917
9	12,525	19.04	238,476	2.70	12,201
10	14,810	15.20	225,112	2.54	11,478
11	18,215	22.39	407,834	4.61	20,831
12	7,654	17.79	136,165	1.54	6,959
13	18,016	32.21	436,167	4.93	22,277
14	11,796	26.16	308,583	3.49	15,770
15	5,945	11.75	69,854	.79	3,570
16*	--	--	31,342	.35	1,627
17*	--	--	30,195	.34	1,536
18*	--	--	19,006	.22	994
19*	--	--	7,150	.08	361
	361,828	$ 24.45	$8,845,920 **	100.00	+$ 451,871

*Campuses are too small to classify. ** Current funding level is $ 4, 518,710

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2. Committee members included:
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   Claude Jons, Director University of Nor ern Colorado Libraries
   Oren Sprague, University of Colorado Libraries
   Virginia Feagler, Colorado State University
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   Fred Struthers, Pikes Peak Community College
   Jumil Qureshi, Director Learning Resourse Center Pikes Peak Community College
   Michael McGrath, Colorado School of Mines
   Curtis Wright, V.P. Business and Finance, Metropolitan State College

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